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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,640	12/14/2001	Hiroshi Mase	ZU-406	9733

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EXAMINER

GILLIAM, BARBARA LEE

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/23/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/009,640

Applicant(s)

MASE ET AL.

Examiner

Barbara Gilliam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-12 and 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,8-11,15,18,20,23,25 and 28 is/are rejected.
- 7) ☒ Claim(s) 5,12,16,17,19,21,22,24,26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The preliminary amendments filed December 14, 2001 and December 27, 2002 have been received and entered in the case.

Claims

2. Claims 1-5, 8-12, 15-28 are present. Claims 6-7, 13 and 14 were canceled.
3. Independent claims 1 and 8 (and all corresponding dependent claims) are similar in content. Claim 1 is directed a lithographic printing original plate and claim 8 is directed to a lithographic printing plate, which is obtained by irradiating an original plate. Therefore for examining purposes, the Examiner has interpreted this distinction to mean the original plate of claim 1 is a precursor to the printing plate.
4. It is noted that claims 1-5, 8-12, 15-16, 20-28 of the present application are product-by-process claims and claims 16-18 depend on product-by-process claims. Applicant is reminded of the Office's position with respect to product by process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). MPEP 2113.

Priority

5. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on April 28, 2000. It is noted, however, that applicant has not filed a copy of the certified copy of the JP 2000-130530 application as required by PCT Rule 17.2(a). Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on November 9, 2000. It is noted, however, that applicant has not filed a copy of the certified copy of the JP 2000-341457 application as required by PCT Rule 17.2(a).

Specification

7. The use of the trademarks OLESTER UD350 (at page 40, line 13, Table 3, Table 7) and LATEMUL S-180 (at page 45, line 1) have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-4, 8-11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Verschueren et al.

a. In US 6,230,621 B1, Verschueren et al. teach a heat sensitive material for making lithographic printing plates comprising on a lithographic support an image forming layer comprising a hydrophilic binder, a cross-linking agent for the hydrophilic binder, metal oxide particles and dispersed hydrophobic thermoplastic polymer particles (claim 1). The heat sensitive material can further comprise an IR sensitive dye or pigment as a compound capable of converting light into heat (claims 5 and 6). The heat sensitive material is image-wise exposed to heat resulting in an increase in oleophilicity of the exposed area without loss of hydrophilicity in the non-imaged parts (claim 8 & column 4, lines 53-56). In Example 2, the image forming layer of the printing plate comprises TiO_2 as the metal oxide particles, polyvinyl alcohol as the hydrophilic binder, hydrolyzed tetramethoxysilane as the cross-linking agent, polystyrene as the hydrophobic thermoplastic particles and IR-dye of structure I as the compound capable of converting light into heat (page 6, lines 9-46). When the thermoplastic particles are subjected to a temperature above the coagulation temperature of the hydrophobic thermoplastic particles, they coagulate to form a hydrophobic agglomerate in the hydrophilic layer so that at these parts the hydrophilic layer becomes hydrophobic and oleophilic. Coagulation may result from softening or melting of the thermoplastic

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polymer particles under the influence of heat (column 3, lines 1-23). The image forming layer of Example 2 meets the present limitations for the photosensitive layer.

b. The Examiner asserts the image forming layer of Verschueren et al. inherently has a hydrophilic phase and hydrophobic phase because the hydrophobic components are not soluble in the hydrophilic medium. The hydrophobic polymer is added to the hydrophilic components of the image forming layer in the form of an emulsion and becomes dispersed therein (Example 2).

c. According to the current specification, there are two scenarios in which the photosensitive hydrophilic layer loses hydrophilicity and is changed to ink-receptive when exposed to a light of a wavelength of 750 to 1100 nm. In the first case the hydrophobic polymer phase is mainly foamed and in the second case foaming hardly takes place. In first case, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas. In the second case, the hydrophobic phase has thermoplasticity and the hydrophobic particles are melted by heat (page 31, line 1 – page 33, line 16). The image forming system of Verschueren et al., comprising thermoplastic particles which melt or soften upon exposure to imaging heat, is similar to the second case wherein foaming hardly takes place. Verschueren et al. is silent with respect to any gases or foam generated however the image forming layer of Verschueren et al. comprises a cross-linking agent and a hydrophilic binder in addition to the hydrophobic thermoplastic particles like the

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photosensitive layer of the present application. Therefore the heat-sensitive layer of Verschueren et al. is expected to foam in the same manner as the present application.

10. Claims 1-2, 4, 8-9, 11, 15, 18, 20 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Leon et al.

a. In US 6,190,830 B1, Leon et al. teach an imaging member comprising a support having thereon a hydrophilic imaging layer comprising a hydrophilic heat-sensitive crosslinked vinyl polymer which is thermally switchable. The polymer comprises organoonium groups as repeating units (claim 1). The polymer is rendered more oleophilic upon exposure to heat (column 3, lines 34-46) and is crosslinked by any number of ways, preferably by the reaction of an amine-containing pendant group with a difunctional or trifunctional additive (column 7, line 20 – column 8, line 3). In Example 1, heat sensitive polymer 2 was mixed with a carbon dispersion and a bis(vinylsulfonyl)methane aqueous solution (crosslinker), coated on a substrate, dried and subsequently imaged with laser having a wavelength of 830 nm (column 14, line 63 – column 15, line 22). The printing plate of Leon et al. meets the present limitations for the lithographic printing plate wherein the heat-sensitive vinyl polymer meets the present limitations for the hydrophilic polymer, the carbon dispersion meets the limitations for the light absorbing compound and the bis(vinylsulfonyl)methane aqueous dispersion meets the limitations for the cross-linking agent.

b. It is clear from the teachings of Leon et al. that a hydrophilic phase and hydrophobic phase are present in the image forming layer taught therein. The image forming layer is a hydrophilic layer containing the hydrophilic heat-sensitive polymer

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comprising organoonium groups. The cross-linking agent, added to the other components of the layer via aqueous dispersion, forms the hydrophobic phase (Examples).

c. According to the current specification, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas (page 32, line 19 – page 33, line 31). Leon et al. is silent with respect to any gases or foam generated however the image forming layer of Leon et al. has the same components as the photosensitive layer of the present application, specifically the cross-linking agent and the hydrophilic binder. Therefore the image forming layer of Leon et al. is expected to foam in the same manner as the present application.

11. Claims 1-2, 4, 8-9, 11, 15, 18, 20 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Van Damme et al.

a. In US 6,096,471, Van Damme et al. teach a heat-sensitive imaging element for providing a lithographic printing plate, comprising a support and a heat switchable image forming top layer comprising a hardened hydrophilic binder and a heat switchable polymer wherein this layer or a layer adjacent thereto comprises a compound capable of converting light into heat. The heat switchable polymer contains aryldiazosulphonate units (claim 1), which is hydrophilic before heating and becomes hydrophobic by heating (column 4, lines 10-18). The compound capable of converting light into heat can be an infrared absorbing dye or pigment (claims 3-4). The image

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forming layer comprising a cross-linking agent (claim 6). In Example 2, a dispersion comprising TiO_2 , a tetramethylorthosilicate emulsion in water (crosslinker), polyvinylalcohol, IR-2 (infrared dye) and the diazosulphonate copolymer P20 was coated on aluminum substrate, dried, hardened by heating and imaged using a CREO 3244 TRENDSETTER™ (column 11, lines 19-37). The wavelength of the CREO 3244 TRENDSETTER™ is not given but according to Van Damme et al. it is within the range of 700-1500nm (column 9, lines 50-59). The printing plate of Van Damme et al. meets the present limitations for the lithographic printing plate wherein the hardened hydrophilic binder meets the present limitations for the hydrophilic polymer, the infrared dye IR-2 meets the limitations for the light absorbing compound and the a tetramethylorthosilicate emulsion meets the limitations for the cross-linking agent.

b. It is clear from the teachings of Van Damme et al. that a hydrophilic phase and hydrophobic phase are present in the heat-sensitive layer taught therein. The heat sensitive layer is a hydrophilic layer containing the hardened hydrophilic binder. The cross-linking agent, added to the other components of the layer via an aqueous emulsion, forms the hydrophobic phase (Example 2). According to the current specification, the gas which causes foaming is presumed to be generated when the polymerizable functional groups of the cross-linking agent contained in the hydrophobic polymer phase remain in the photosensitive layer, and these residual functional groups undergo a reaction or decomposition to thereby generate a gas (page 32, line 19 – page 33, line 31). Van Damme et al. is silent with respect to any gases or foam generated however the heat-sensitive layer of Van Damme et al. has the same components as the photosensitive layer of the present application, specifically the cross-linking agent and

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the hydrophilic binder. Therefore the heat-sensitive layer of Van Damme et al. is expected to foam in the same manner as the present application.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 18, 20, 23, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verschueren et al.

a. As indicated in the corresponding rejection under 35 U.S.C. 102(e), Verschueren et al. (US 6,230,621 B1) teach a heat sensitive material for making lithographic printing plates comprising on a lithographic support an image forming layer comprising a hydrophilic binder, a cross-linking agent for the hydrophilic binder, metal oxide particles and dispersed hydrophobic thermoplastic polymer particles (claim 1). The heat sensitive material can further comprise an IR-sensitive dye or pigment as the compound capable of converting light into heat (claims 5 and 6). The heat sensitive material is image-wise exposed to heat resulting in an increase in oleophilicity of the exposed area without loss of hydrophilicity in the non-imaged parts (claim 8 & column 4, lines 53-56). The printing plates of the Examples were imaged with a thermal printer (column 8, lines 16-19) however according to Verschueren et al. the preferred method

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for image-wise exposure is with a laser operating in the infrared or near-infrared wavelength range of 700-1500 nm (column 5, lines 1-6).

b. Therefore it would have been obvious to one of ordinary skill in the art to make and image-wise expose a lithographic printing plate to laser light having a wavelength in the range of 700-1500 nm wherein the printing plate comprises on a lithographic support an image forming layer comprising polymethylacrylamide as a hydrophilic binder, a cross-linking agent for the hydrophilic binder, metal oxide particles, an IR sensitive dye and dispersed hydrophobic thermoplastic polymer particles wherein the exposed plate is ready for printing without a development step based on the teachings of Verschueren et al. (column 5, lines 1-9).

Allowable Subject Matter

14. Claims 5, 12, 16-17, 19, 21, 22, 24, 26 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

a. There is no teaching or suggestion in Verschueren et al. (US 6,230,621 B1) to specifically use hydrophobic thermoplastic particles having a film forming temperature of not higher than 50° C as required in the present claims. The hydrophobic thermoplastic polymer particles of Verschueren et al. preferably have a

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coagulation temperature above 50° C. Coagulation may result from softening or melting of the thermoplastic polymer particles under heat (column 3, lines 1-31).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. The teachings of Verschueren et al. in US 6,230,621 B1 are similar to Van Damme et al. US 6,300,032 B1. To avoid cumulative rejections US 6,300,032 B1 is cited.

b. In US 6,030,750, Vermeersch et al. teach a method for making a lithographic printing plate involving on press development.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Gilliam whose telephone number is 703-305-1330. The examiner can normally be reached on Monday through Friday, 8:00 AM - 6:00 PM.

a. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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b. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Barbara Gilliam
Examiner
Art Unit 1752

bg
June 16, 2003